

**THE PORT AUTHORITY**  
**OF NY & NJ**

ORIGINAL SIGNED BY JERROLD DINKELS  
ENGINEERING PROGRAM MANAGER  
WORLD TRADE  
ORIGINAL SIGNED BY JACK BUCHSBAUM  
CHIEF ELECTRICAL ENGINEER

1	2-2-01	AS BD	
No	Date	Revision	Approved

ENGINEERING DEPARTMENT

**WORLD  
TRADE  
CENTER**

ELECTRICAL

TENANT STAND-BY POWER SYSTEM  
SUBSTATIONS SP-41A2, SP-7B

**LEGEND, GENERAL  
NOTES AND LIGHTING  
FIXTURE SCHEDULE**

This drawing is subject to conditions of contract and specifications. It is not to be used without the written approval of the Port Authority.

AVENOSO AVENOSO A.SENIOR  
12/8/00 12/8/00 12/8/00

DECEMBER 8, 2000

WTC-945.083

E1

**LEGEND**

- HEAVY LINE INDICATES WORK TO BE DONE  
LIGHT LINE INDICATES EXISTING TO REMAIN  
HEAVY DASHED LINE INDICATED ITEMS TO BE REMOVED  
EXISTING CIRCUIT BREAKER, DRAWOUT TYPE, 13.8KV  
MEDIUM VOLTAGE-LOCATED AT THE EXISTING POWER  
DISTRIBUTION CENTER (PDC)  
TRANSFORMER, DRY TYPE  
INTERRUPTER/GROUNDING SWITCH  
MOLDED CASE CIRCUIT BREAKER  
FUSE  
JUNCTION BOX  
KEY BLOCK WITH KEY  
(SHOWN IN NORMAL LOCATION)  
KEY BLOCK WITHOUT KEY

**GENERAL NOTES**

- ALL WORK SHALL BE IN ACCORDANCE WITH THE NEW YORK CITY ELECTRICAL CODE, THE NATIONAL ELECTRIC CODE, THE NATIONAL ELECTRIC SAFETY CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION, OCCUPATIONAL SAFETY AND HEALTH ACT, AND ALL OTHER EXISTING CODES AND REGULATIONS OF AUTHORITIES WHICH WOULD HAVE JURISDICTION IF THE PORT AUTHORITY OF NY & NJ WERE A PRIVATE CORPORATION.
- SHOULD ANY DISCREPANCIES BE FOUND IN THE COURSE OF THE INSTALLATION WORK, IMMEDIATELY INFORM THE ENGINEER IN WRITING. DO NOT PROCEED UNTIL A CLARIFICATION AND/OR AUTHORIZATION TO PROCEED IS ISSUED.
- ALL EXISTING EQUIPMENT THAT IS ABANDONED DUE TO THE WORK OF THIS CONTRACT, OR SHOWN TO BE REMOVED, AND WHICH IS NOT TO REMAIN IN USE, SHALL BE REMOVED AS PART OF THIS SCOPE OF WORK. REMOVE, RELOCATE OR MODIFY EXISTING ELECTRICAL WORK AS SHOWN AND AS REQUIRED TO SUIT THE INSTALLATION.
- THE DRAWINGS ARE DIAGRAMMATIC AND GENERALLY INDICATIVE OF THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, FITTINGS AND BOXES WHICH MAY BE REQUIRED. CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND MAKE INSTALLATION ACCORDINGLY. FURNISH AND INSTALL SUCH FITTINGS, BOXES AND SIMILAR ITEMS AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.
- PERFORM ALL WORK NECESSARY TO FURNISH, OFF, LOAD, STORE, STAGE, REMOVE AND INSTALL EQUIPMENT, APPURTENANCES, MATERIALS AND SERVICES TO MAKE INSTALLATION COMPLETE, FUNCTIONAL AND OPERABLE TO THE SATISFACTION OF THE ENGINEER.
- PERFORM A PROTECTIVE DEVICE COORDINATION STUDY, INCLUDING CALCULATION OF AVAILABLE FAULT CURRENTS, TO PROPERLY SET PROTECTION PARAMETERS FOR THE DEVICES. SUBMIT THE DEVICE COORDINATION STUDY FOR THE APPROVAL OF THE ENGINEER PRIOR TO ENERGIZATION. ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE BRACED TO WITHSTAND THE AVAILABLE SHORT-CIRCUIT CURRENT.
- LOCATION OF ELECTRICAL EQUIPMENT SHOWN ON THE CONTRACT DRAWINGS IS APPROXIMATE. EXACT LOCATION SHALL BE VERIFIED IN THE FIELD. ADVISE THE ENGINEER OF ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- PRIOR TO INSTALLATION, SUBMIT DIMENSIONED INSTALLATION LAYOUTS TO THE ENGINEER FOR APPROVAL. THE LAYOUTS SHALL INCLUDE, BUT NOT BE LIMITED TO, TRANSFORMER ENCLOSURE, HV SWITCH, LV SWITCHBOARD, BUSWAY, PULL/SPLICE BOX, CONDUIT ENTRANCES AND EXITS, AND HOUSEKEEPING PAD. THE LAYOUT SHALL SHOW DISTANCES BETWEEN THE EQUIPMENT TO BE INSTALLED AND EXISTING WALL, COLUMN, PIPING AND MECHANICAL EQUIPMENT.
- COORDINATE WITH OTHER TRADES TO DETERMINE THE EXACT LOCATIONS OF MOTORS, MOTOR TERMINAL BOXES AND OTHER EQUIPMENT TO BE INSTALLED BY OTHER TRADES BEFORE CONDUIT WORK IS STARTED. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF ALL MECHANICAL EQUIPMENT.
- ALL AREAS AND EXISTING EQUIPMENT DISTURBED DUE TO THE INSTALLATION OF EQUIPMENT SHALL BE RESTORED TO ITS ORIGINAL CONDITION. COORDINATE ALL CONNECTIONS TO THE EXISTING SYSTEM AND ANY DISRUPTIONS OF SERVICE WITH THE ENGINEER. CONNECTIONS TO THE EXISTING SYSTEMS AND/OR EQUIPMENT SHALL BE IN STRICT COMPLIANCE WITH APPLICABLE CODES. RESTORE EXISTING SYSTEM AND/OR EQUIPMENT TO ITS ORIGINAL CONDITION AS REQUIRED.
- GROUND CONTINUITY OF RACEWAYS, SUBSTATION EQUIPMENT, MOTORS, PULL/SPLICE BOXES, FENCE AND MECHANICAL EQUIPMENT SHALL BE MAINTAINED IN AN APPROVED MANNER.
- EXISTING EQUIPMENT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE COMPLETELY IDENTIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CONTRACT. MAKE ALL NECESSARY APPROPRIATEMENTS AND PREPARATIONS OF THE SPACE TO SET PROCEDURES. REMOVE OBSTRUCTIONS. PERFORM MODIFICATIONS AND/OR ADDITIONS, INCLUDING DISMANTLING AND/OR TEMPORARY RELOCATION OF EXISTING EQUIPMENT, WHETHER OR NOT SHOWN ON THE DRAWINGS TO SAFELY AND EXPEDIENTLY COMPLETE THE INSTALLATION.
- ALL EXISTING LIGHTING FIXTURES INDICATED TO BE RELOCATED SHALL BE CLEANED, REFURISHED, PAINTED AND RELAMPED. PROVIDE BRANCH CIRCUIT WIRING TO RELOCATED LIGHTING FIXTURES.
- ALL REMOVED BALLASTS THAT CONTAIN PCB SHALL BE PLACED IN DRUMS SUPPLIED BY THE PORT AUTHORITY. CARE SHALL BE TAKEN NOT TO BREAK THE BALLASTS. SEAL FILLED DRUMS AND STORE AS DIRECTED FOR REMOVAL BY THE PORT AUTHORITY.
- PERFORM ALL CUTTING, DRILLING AND CORE BORING AS NECESSARY TO PROVIDE PENETRATIONS THROUGH WALLS AND FLOORS. PATCH AND RESTORE ALL PENETRATIONS TO THE ORIGINAL CONDITION. A SCHEDULE OF SUCH WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE COMMENCING WORK. ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH A NEW YORK CITY APPROVED FIRE STOPPING MATERIAL.
- ALL OPENINGS DUE TO REMOVAL OR INSTALLATION OF ELECTRICAL DEVICES, EQUIPMENT OR RACEWAYS SHALL BE SEALED IN AN APPROVED MANNER.
- ALL UNUSED OPENINGS IN CONDUIT BOXES, ENCLOSURES, SWITCHBOARDS, PANELBOARDS, AND ANY OTHER ELECTRICAL EQUIPMENT SHALL BE CLOSED TO MAINTAIN THE SAME INTEGRITY AS IF THE OPENING WAS NOT MADE.
- ALL MATERIALS REQUIRED SHALL BE NEW AND SHALL BEAR U.L. LISTING AND LABELING WHERE SUCH STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIAL.
- ALL CONDUITS SHALL BE GALVANIZED RIGID STEEL WITH THREADED TYPE FITTINGS. MINIMUM SIZE OF CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
- ALL CONDUITS SHALL CONTAIN AN INSULATED GROUND WIRE.

**LIGHTING FIXTURE SCHEDULE**

SYMBOL	DESCRIPTION	VOLTAGE	LAMP QUANTITY WATTAGE AND TYPE	BALLAST	FIXTURE/REMARKS
	2" WAMP TURRET INDUSTRIAL FLUORESCENT FIXTURE, 20 GAUGE STEEL HOUSING WITH BAKED WHITE ENAMEL FINISH, 10% UPLIGHT, CHAIN HUNG 10'-0" AFF	277	(2) F32T8 PHILIPS #F32T8/TL841 3050 LUMENS, 4100K O.A.E. BY GE OR OSRAM	ELECTRONIC RAPID START MAGNETEK #B2321120HP O.A.E.	LITHONIA #AF232- NYC O.A.E.